

Name _____

Punnett Square Practice

Punnett square =

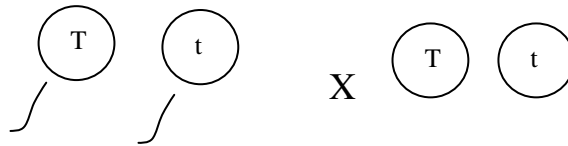
- A chart used to display the potential genotypes of offspring from a particular male and female parent

1. Write the genotype of the parents of the cross using the correct symbols.

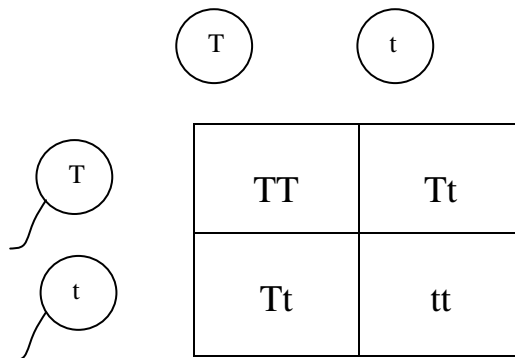
EX: Cross 2 heterozygous tall plants

$$\text{♂ } \underline{Tt} \times \underline{Tt} \text{ ♀}$$

2. Segregate the alleles of each gene on separate gametes. This allows you to determine all the gene combinations possible in the egg and sperm cells.



3. Set up the Punnett square correctly.



4. Determine the probability of having an offspring of each genotype and phenotype.

- Probability offspring has genotype TT: 1/4
- Probability offspring has genotype Tt: 2/4 = 1/2
- Probability offspring has genotype tt: 1/4
- Probability offspring is tall: 3/4
- Probability offspring is short: 1/4

**Read each problem carefully. Start by writing the genotypes of the parents.
Show all of your work, including a Punnett square.
Determine the probability for each genotype and phenotype.**

1. In Mendel's crosses for seed shape, round seeds (R) are dominant over wrinkled (r).
Cross two plants that are heterozygous for round seeds.

♂ _____ X _____ ♀

- Probability offspring has genotype RR:
- Probability offspring has genotype Rr:
- Probability offspring has genotype rr:
- Probability offspring has round seeds:
- Probability offspring has wrinkled seeds:

2. Mendel also examined seed color. Yellow seed color (Y) is dominant over green seed color (y).
Cross a male plant that is heterozygous for yellow pods and a female plant with green pods.

♂ _____ X _____ ♀

- Probability offspring has genotype YY:
- Probability offspring has genotype Yy:
- Probability offspring has genotype yy:
- Probability offspring has yellow seeds :
- Probability offspring has green seeds:

3. Another trait Mendel followed was the color of pea pods. Green colored pods (G) are dominant over yellow pods (g).
Cross a male plant that is homozygous for green pods and a female plant with yellow pods.

♂ _____ X _____ ♀

- Probability offspring has genotype GG:
- Probability offspring has genotype Gg:
- Probability offspring has genotype gg:
- Probability offspring has green pods:
- Probability offspring has yellow pods:

4. In Mendel's crosses axial (A) flower position is dominant over terminal (a) flower position.
Cross a male plant with terminal flowers and a female plant that is homozygous for axial flowers.

♂ _____ X _____ ♀

- Probability offspring has genotype AA:
- Probability offspring has genotype Aa:
- Probability offspring has genotype aa:
- Probability offspring is axial:
- Probability offspring is terminal:

5. In guinea pigs black coat color (B) is dominant over brown (b) coat color.
Cross two heterozygous black guinea pigs.

♂ _____ X _____ ♀

- Probability offspring has genotype BB:
- Probability offspring has genotype Bb:
- Probability offspring has genotype bb:
- Probability offspring is black:
- Probability offspring is brown:

6. Curly hair (C) is dominant over straight hair (c).
Cross a male that is homozygous for curly hair and a female that is heterozygous for curly hair.

♂ _____ X _____ ♀

- Probability offspring has genotype CC:
- Probability offspring has genotype Cc:
- Probability offspring has genotype cc:
- Probability offspring has curly hair:
- Probability offspring has straight hair:
